

Guidelines for Construction and Renovation in Takoma Park: Creating a Sustainable Environment

Prepared by the Committee on the Environment, City of Takoma Park
Adopted by the Takoma Park City Council on November 29, 1999
Subsequently amended:

Any design proposal for construction or renovation of buildings in Takoma Park should incorporate the following to the fullest extent possible:

Early Planning

- Ensure that ~~other alternative spaces are unavailable~~ before determining that a new building must be erected.
- Development should occur on previously developed land or on infill property.
- Re-use of existing buildings and building materials is encouraged.

Access

- Plan an easily accessible route to the building for bikes, pedestrians, or wheelchairs.
- Ensure that areas and features of the interior are easily accessible by wheelchair and walker. (See Americans with Disabilities Act Guidelines.)
- Plan adequate space for parking and bike storage.
- Ensure access to refueling facilities for alternatively fueled vehicles (i.e. electric and natural gas).
- Make sure access to the building does not create unmanageable traffic hazards or congestion and includes easy access to public transportation.

Design and Placement of Building

- Ensure that the building has the smallest footprint feasible to minimize the impacts of runoff and reduce other negative impacts to the surrounding natural environment.
- Use natural energy flows. Make sure the building's orientation and design makes the best use of natural energy flows: wind, sun, rain and snow.
- Ensure that the building meets the ASHRAE 62-1989 Ventilation for Acceptable for Indoor Air Quality and ASHRAE 55-1992 Thermal Environmental Conditions for Human Occupancy.
- Make sure all impervious surface drainage, such as a parking lot and a rooftop, is routed to pervious areas such as yards, open channels or vegetated areas to enhance groundwater recharge. (Avoid routing to streets or storm drains.) Planners should submit a runoff reduction strategy for the construction phase and post-construction.

The Grounds

- Clear only enough space to build. Leave nearby vegetation and include a landscape plan to restore vegetation removed or damaged during the construction phase.
- Leave a correctly sized buffer (or plant one) to protect any nearby streams—100 to 200 foot minimum—in accordance with the Montgomery County Environmental Guidelines.
- Wherever possible, especially if parking is planned, develop bioretention areas consistent with the above mentioned runoff reduction strategy.
- Plant tall long-lived trees to fully shade the parking lot and to shade the building in summer months.
- Surround tree boxes with permeable surface pedestrian walks. (Impermeable surfaces for vehicles)
- In any commercial setting, provide large, high-quality, properly graded tree boxes to protect soil from compaction and allow for adequate healthy root growth.
- Plant only trees native to Maryland. Trees should be planted by professionals and come with a one to five year guarantee. A maintenance contract should be used to ensure viability.
- The construction plan should comply with Sections 4.2 e and f of the Maryland Model Erosion and Sediment Control Ordinance and Section 6 (Group 2) of the Maryland Model Stormwater Management Ordinance.
- Include refueling facilities for alternative-fuel vehicles, with adequate safety features and ventilation.

Building Equipment and Materials

- Use energy-efficient technologies for all building systems—lighting, plug load, air handling, heating, and cooling. The building and equipment should exceed minimum US Environmental Protection Agency/Department of Energy ENERGY STAR performance standards where applicable. Use ENERGY STAR labeled lighting fixtures and lighting consistent with Green Lights guidance.
- Make sure fresh air ventilation passes through an air to air waste heat recovery exchanger.
- Use on-site renewables, such as solar collectors, everywhere feasible.
- Integrate technology with design—use passive solar heating for winter, venting in summer.
- Use high albedo paving and roofing materials (materials that reflect rather than absorb heat) equal to ENERGY STAR. Or a rooftop garden/simple vegetation system could be used. Planners should perform a life-cycle cost analysis between a conventional roof, a high albedo roof, and a simple rooftop vegetation system.
- Use non-toxic recycled or recyclable materials, such as carpeting made from plastic bottles, low-odor VOC-free paints, and hardwood instead of particle board.
- Plant only certified disease-free plants and trees indoors.
- Use the most energy-efficient outdoor lighting possible for the given application. Light trespass should be minimized, while ensuring quality lighting—high color rendition index (greater than 85).

- Consider a no-carpet policy, since carpeting (except plastic) often contributes to indoor air pollution. Where carpet is used, install a floor covering system that recycles old carpeting whenever possible.
- Commission the building according to the GSA Model Commissioning Plan and Guide Specifications. (That is, ensure that the various building systems work together correctly and can be maintained so as to meet intended energy efficiency and operational goals.)

Maintenance

- Develop a building recommissioning strategy. (Recommissioning is a "building tune-up"—a purposeful sequence of maintenance and operational improvements, undertaken at a specific point in time, designed to reduce energy use, heating loads and cooling loads of an existing building.)
- Use an Energy Management System (EMS) or a Distributed Digital Control System.
- Insist on a no smoking policy.
- Avoid use of solvents and other chemicals that would contaminate indoor air.
- Place water fountains with high quality drinking water in numerous convenient places.
- Place recycling receptacles conveniently near trash receptacles.
- Avoid Styrofoam food containers.
- If there is a swimming pool, use minimal amounts of chlorine or use alternative cleaning systems such as solar pool cleaners or silver-copper ionization. Projects with heated swimming pools should consider using pool blankets or solar covers and solar preheating the pool water with a Solar Pool Heating system equal to 50% of the surface area of the pool.

References

- Center for Watershed Protection at www.pipeline.com
- ASHRAE 62-1989 Ventilation for Acceptable Indoor Air Quality and ASHRAE 55-1992 Thermal Environmental Conditions for Human Occupancy at www.ashrae.org
- Energy Star Labeled products at www.epa.gov/energystar
- Energy Star Buildings and Green Lights guidance documents at www.epa.gov/buildings/ESB_Home.html. Look for link to Resources and Tools. Download the PDF files for the Green Lights Lighting Upgrade Manual, ENERGY STAR Building Upgrade Manual, and other technical resources.
- Environmental Guidelines—Guidelines for Environmental Management of Development in Montgomery County. Approved by the Montgomery County Planning Board and published by the Maryland-National Capital Park and Planning, 8787 Georgia Avenue, Silver Spring, MD 20910-3760.
- GSA Model Commissioning Plan and Guide Specifications at www.peci.org/cx/mcpgs.html.